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Exhibit A

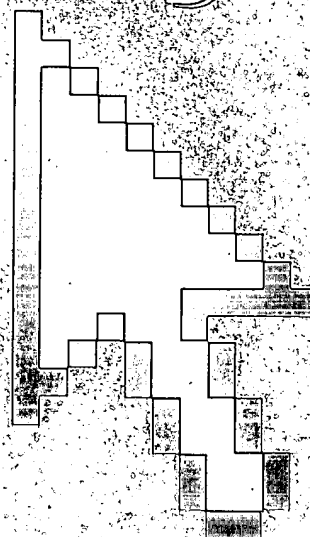
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**log files** *n.* A computer file that records requests received by online applications or the number of hits a Web page receives. Log files are useful in analyzing the technical performance of a Web site, redesigning Web site navigation, and revising marketing strategies used by e-businesses.

**logic** *n.* In programming, the assertions, assumptions, and operations that define what a given program does. Defining the logic of a program is often the first step in developing the program's source code. *See also* formal logic.

**logical** *adj.* 1. Based on true and false alternatives as opposed to arithmetic calculation of numeric values. For example, a logical expression is one that, when evaluated, has a single outcome, either true or false. *See also* Boolean algebra. *Compare* fuzzy logic. 2. Conceptually true to a particular design or idea—for example, network transmissions travel in a circle around a logical ring, even though the ring shape itself is not physically apparent. *Compare* physical.

**logical block addressing** *n.* A technique in which the cylinder, head, and sector locations on a hard disk are converted to 24-bit addresses for data storage and retrieval. Logical block addressing is used with SCSI drives and is also a feature of Enhanced IDE (EIDE) disk drives, on which it breaks through the earlier 528-MB IDE limit and allows support for drives up to 8.4 GB in capacity if 24-bit logical address space is used. Address conversion is performed by an EIDE drive's disk controller, but also requires support from the BIOS and the computer's operating system. *Acronym:* LBA. *See also* EIDE, SCSI.

**logical decision** *n.* Any decision that can have one of two outcomes (true/false, yes/no, and so on). *Compare* fuzzy logic.

**logical device** *n.* A device named by the logic of a software system, regardless of its physical relationship to the system. For example, a single floppy disk drive can simultaneously be, to the MS-DOS operating system, both logical drive A and drive B.

**logical drive** *n.* *See* logical device.

**logical error** *n.* *See* logic error.

**logical expression** *n.* *See* Boolean expression.

**logical file** *n.* A file as seen from a conceptual standpoint, without reference to and as distinct from its physical realization in memory or storage. For example, a logical file might consist of a contiguous series of records, whereas the file might be physically stored in small pieces scat-

tered over the surface of a disk or even on several disks: A logical file might also consist of some subset of columns (fields) and rows (records) extracted from a database. In this case, the logical file (or view) is only that information required by a particular application program or user.

**Logical Link Control** *n.* *See* LLC.

**logical memory** *n.* A correlation between physical memory of the computer system and an address range that is accessible to devices. The hardware abstraction layer (HAL) provides this correlation (or mapping). *See also* map.

**Logical network** *n.* A way to describe the topology, or layout, of a computer network. Referring to a logical (rather than physical) topology describes the way information moves through the network—for example, in a straight line (bus topology) or in a circle (ring topology). The difference between describing a network as logical or physical is sometimes subtle because the physical network (the actual layout of hardware and cabling) doesn't necessarily resemble the logical network (the path followed by transmissions). A logical ring, for example, might include groups of computers cabled octopus-like to hardware "collection points" which, in turn, are cabled to one another. In such a network, even though the physical layout of computers and connecting hardware might not visually resemble a ring, the logical layout followed by network transmissions would, indeed, be circular. *See also* bus network, ring network, star network, token ring network, topology. *Compare* physical network.

**logical operator** *n.* An operator that manipulates binary values at the bit level. In some programming languages, logical operators are identical to Boolean operators, which manipulate true and false values. *See also* Boolean operator, mask.

**logical record** *n.* Any unit of information that can be handled by an application program. A logical record can be a collection of distinct fields or columns from a database file or a single line in a text file. *See also* logical file.

**logical schema** *n.* *See* conceptual schema.

**logic analyzer** *n.* A hardware device that facilitates sophisticated low-level debugging of programs. Typical features include the ability to monitor bus signals during execution, to halt execution when a given memory location is read or written to, and to trace back through some number of instructions when execution is halted for any reason. *See also* debugger.

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page and used to access and present database information. An HTML document that contains a PHP script usually has a .php filename extension. Originally PHP stood for "Personal Home Page," with later versions standing for "PHP Hypertext Preprocessor" or simply PHP. The syntax of PHP is fairly simple and very similar to that of Perl, with some aspects of Bourne shell, JavaScript, and C. It can also be regarded as a technology (server-side environment for ported script engines, like ASP).

**phreak<sup>1</sup> n.** A person who breaks into, or *cracks*, telephone networks or other secured systems. In the 1970s, the telephone system used audible tones as switching signals, and *phone phreaks* used homebrew hardware to imitate the tones and steal long-distance service. *See also* homebrew. *Compare* cracker, hacker (definition 2).

**phreak<sup>2</sup> vb.** To break into, or *crack*, phone networks or computer systems. *See also* homebrew. *Compare* hack.

**PHS n.** *See* Personal Handyphone System.

**physical adj.** In computing, of, pertaining to, or characteristic of a real, as opposed to a conceptual, piece of equipment or frame of reference. *Compare* logical (definition 2).

**physical address n.** An address that corresponds to a hardware memory location. In simple processors such as the 8088 and the 68000, every address is a physical address. In processors supporting virtual memory, programs reference virtual addresses, which are then mapped by memory management hardware onto physical addresses. *Also called:* hardware address. *See also* memory management unit, paging, virtual memory.

**physical-image file n.** A hard disk copy of the material to be recorded onto a CD-ROM. Creating a complete copy precludes problems in writing the CD-ROM because of delays in assembling the material from a scattered group of files. *See also* CD-ROM. *Compare* virtual-image file.

**physical layer n.** The first, or lowest, of the seven layers in the ISO/OSI reference model for standardizing computer-to-computer communications. The physical layer is totally hardware-oriented and deals with all aspects of establishing and maintaining a physical link between communicating computers. Among specifications covered on the physical layer are cabling, electrical signals, and mechanical connections. *See the illustration. See also* ISO/OSI reference model.

| ISO/OSI MODEL                  |   |
|--------------------------------|---|
| ISO/OSI Layer                  | Focus   |
| Application<br>(highest level) | Program-to-program transfer of information                |
| Presentation                   | Text formatting and display, code conversion              |
| Session                        | Establishing, maintaining, and coordinating communication |
| Transport                      | Accurate delivery, service quality                        |
| Network                        | Transport routes, message handling and transfer           |
| Data-link                      | Coding, addressing, and transmitting information          |
| Physical                       | Hardware connections                                      |

**Physical layer.** *Lowest layer in the ISO/OSI reference model.*

**physical memory n.** Memory actually present in the system, as opposed to virtual memory. A computer might have 64 megabytes of physical RAM but support a virtual memory capacity of 1 gigabyte or more. *Compare* virtual memory.

**\*physical network n.** One of two ways of describing the topology, or layout, of a computer network; the other is logical network. A physical network refers to the actual configuration of the hardware forming a network—that is, to the computers, connecting hardware, and especially the cabling patterns that give the network its shape. Basic physical layouts include the bus, ring, and star topologies. *See also* bus network, logical network, ring network, star network.

**physical storage n.** *See* real storage.

**pi n.** A mathematical constant equal to approximately 3.1415926535897932, describing the ratio of the circumference of a circle to its diameter.

**PIC n.** *See* programmable interrupt controller.

**pica n. 1.** With reference to typewriters, a fixed-width type font that fits 10 characters to the linear inch. *See also* pitch. **2.** As used by typographers, a unit of measure equal to 12 points or approximately 1/6 inch. *See also* point<sup>1</sup> (definition 1).

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